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U.S. Working Conditions Service

Treatment of industrial problems by constructive...

Washington

1919

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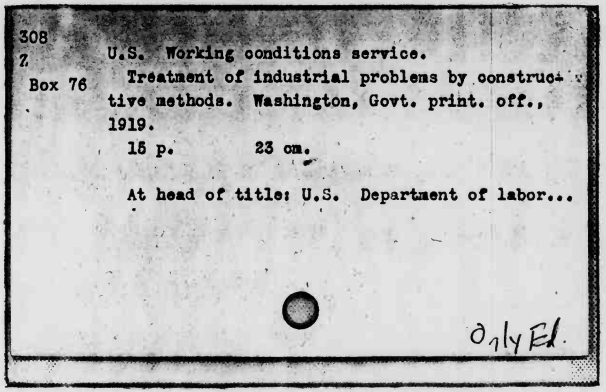

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U. S. DEPARTMENT OF LABOR
WORKING CONDITIONS SERVICE
GRANT HAMILTON, Director General

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TREATMENT OF INDUSTRIAL PROBLEMS *by* CONSTRUCTIVE METHODS

WASHINGTON
GOVERNMENT PRINTING OFFICE
1919

U. S. DEPARTMENT OF LABOR
WORKING CONDITIONS SERVICE
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TREATMENT OF INDUSTRIAL PROBLEMS BY CONSTRUCTIVE METHODS.

Every employer is interested in developing a stable, efficient working force. But not every employer understands how much industrial health, safety, and good relationship between employers and employed contribute toward that end. To supply industries with this fundamental information and with a consulting service free from bias and partisan propaganda are functions of the Working Conditions Service, Department of Labor.

The business world has previously been inclined to regard efforts to promote industrial health, safety, and employment management as humanitarian idealism—or perhaps fads of the kind hearted. But these are problems that confront every executive responsible for production. As production must be maintained upon a paying basis, management is constantly studying all elements that constitute costs of production. Many firms have included under labor costs expenditures for wages only. Scientific study has revealed other labor costs in addition to wages. By adopting better policies costs can be reduced. The Working Conditions Service is rendering invaluable assistance to employers in developing and establishing these better policies.

The prevention of sickness, accidents, and labor disturbances is recognized as good business. Banks, which are the barometers of the business world, regard good labor policies as an asset of a client. Several banks are now advising industries upon labor policies. An influential eastern bank requested the Working Conditions Service to prepare a pamphlet on industrial relations to be circulated among its clientele.

The Service, in complying, laid down the fundamental groundwork for enduring understanding. Employers generally are interested in making working conditions the best that can be maintained consistently with good business. The determination of harmful conditions and the establishment of improvements involve scientific study and the assistance of technical experts. Supplying industries with this service leads to two beneficial results—increased production

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and conservation of the lives and health of industrial workers. Both results are a tremendous national advantage. Therefore the Department of Labor is furnishing employers free of charge an expert consulting service equipped to study existing conditions and policies, to uncover defects, and to recommend improvements and assist in their installment. As the Department of Labor is the Federal agency charged with promoting the interests of labor, the recommendations of the Working Conditions Service have the confidence of the workers.

Working conditions, the field in which the Service is functioning, include the environment of the place of work, production processes, and relations between all those engaged in the work—both the management and the workers. The Service deals with wages and hours only as scientific elements affecting the health and well-being of the workers. Long hours of work which result in excessive fatigue have a direct influence on health, accident frequency, and the producing power of the individual. They lower morale. The determination of wages and hours as an agreement between employer and worker does not lie within the scope of this Service. The Service does not act as arbiter or conciliator upon wages, hours, or working conditions that are involved in industrial disputes. In other words, working conditions as dealt with by this Service are those phases which can be studied and determined scientifically. Our relation to employers and employees is that of consulting expert and not that of arbiter or referee.

The authority of the Working Conditions Service is wholly advisory. Since the improvement of working conditions is a scientific field, society recognizes that can best be accomplished by advising employers on working out their problems and helping them to find better ways than by penalizing shortcomings and threats of the "Big Stick." By the advisory method those responsible for working conditions must be convinced of the advantages of the standards urged. Once the idea is accepted by them it becomes part of the management policies, not a mandatory regulation imposed from the outside.

The Working Conditions Service is developing in its Washington office a national informational center upon industrial health, safety, and labor administration. This information is available to all making requests. But in addition to general information the employer wants to know what to do under the conditions existing in his own plant. The only practical way to help that employer is to send to his office or plant a specialist jointly to examine with the employer, conditions, methods, and relationships existing. Recommendations can then be based upon first-hand knowledge of the situation and the point of view of employers.

In developing plans to carry out the purpose of the Working Conditions Service. three divisions were established: Division of Industrial Hygiene and Medicine, Division of Safety Enginering, Division of Labor Administration.

DIVISION OF INDUSTRIAL HYGIENE AND MEDICINE.

The function of the Division of Industrial Hygiene and Medicine is to protect and improve the health of those employed in industry and thereby facilitate productivity. Conservation of the health is of importance not only to workers and employers, but to the community. To see that industries are safe and healthful, therefore, is a governmental responsibility. In assuming the responsibility the Department of Labor recognized that industrial hygiene is essentially a public health matter, but also a matter which fundamentally affects the personal interests of men, women, and children industrially employed, and vitally affects social welfare and industrial efficiency. In order to protect the interests of these human beings their confidence and cooperation must be secured.. This can best be done through the Department of Labor, an agency devoted to their special interests.

That the service might be thorough it was deemed wise to coordinate public health activities affecting industries with provisions for safety and labor administration. Therefore a joint arrangement was made by the Secretary of Labor and the Secretary of the Treasury whereby personnel should be detailed from the United States Public Health Service to the Working Conditions Service to function as the Division of Industrial Hygiene and Medicine. The personnel thus detailed is composed not only of industrial physicians, hygienists, and sanitarians, but highly specialized engineers familiar with problems of light, ventilation, production, and other factors affecting alike the engineering and health side of industry.

In developing a national program to promote industrial health there have been two fundamental ideas recognized. That control over physical working conditions is in the hands of the management, and second, that the approval and cooperation of workers are necessary to make the equipment and regulations effective.

It needs no argument to prove to employers that vigorous healthy workers do better and more work in return for wages paid them than workers handicapped by sickness or physical impairment can render. Workers know that health means power to work and is part of their trade capital. But both management and worker need assistance in understanding what conditions in industrial plants constitute health hazards. Specialists are necessary to keep advised both employers and employees what working conditions are doing

to the bodies of workers. Dust, fumes, poisonous work materials, bad air, bad lighting, dirt, inadequate sanitary provision, result in sick workers and poor production. Paying workers compensation for accidents and sickness only tides them over an emergency period. They come back physically weaker and therefore less efficient workers. The production problem is in no way solved. The management does not secure the returns it ought to receive. The only effective and constructive course is to find out what conditions cause the sickness and poor production and eliminate these causes. Healthy, vigorous workers produce more than those with physical handicaps. The management gets many returns for all outlays for health conservation. The Division of Industrial Hygiene and Medicine offers to production managers the benefit of the best information available and the assistance of specialists in eliminating industrial health hazards.

The work which the division is carrying on has two fundamental objectives:

(*a*) To develop hygienic standards for industries;

(*b*) To develop and standardize systems of medical and surgical service.

Practically every kind of production has its peculiar health hazards. In the dusty trades, the relation between the occupation and diseases which shorten the lives of many workers is more conspicuous than the insidious dangers which sap the vitality of workers in other kinds of production. Lead poisoning has been found among workers of many trades. Obnoxious and poisonous fumes characterize the chemical trades. Makers of explosives handle poisons that have serious dermatic and systemic effects. Those who use cutting oils are liable to contract furunculosis, folliculitis, and other skin diseases. Miners, leather workers, textile operatives, and workers in practically every industry are liable to special risks, not the least of which are diseases of the lungs and respiratory tracts.

In order to safeguard workers against these occupational hazards, working conditions and processes must be studied by scientists with special training in production as it affects health. Investigations uncover the causes of industrial sickness and lead to the development of hygienic standards that protect the lives and health of workers. The researches of the Division of Industrial Hygiene and Medicine cover three main fields:

(1) General hygienic conditions in industries in order to determine wherein existing conditions both within and without plants comply with sanitary requirements;

(2) Specific occupational diseases and poisonings to ascertain cause, effect and prevention;

(3) Physiological requirements of various occupations as the basis for developing methods of proper placement of workers with regard to physical ability.

In order to make the results of scientific researches and information available to industries in the most effective manner the division offers the following:

For those industries which are under governmental control it offers to install and supervise departments of health and sanitation, to introduce and standardize records and reports and direct researches into any actual or alleged hazard, outlining the necessary engineering and prophylactic measures to reduce the seriousness of such hazards or eliminate them entirely, that will enable the management to know health conditions and results of policies and methods.

To industries under private control, consulting service is furnished to improve hygienic conditions and medical service. Upon request the division will make a health survey of the plant, make recommendations to the management, and, if desired, supervise the installment of recommendations.

Since the health of workers is affected by conditions outside the plant as well as by the working environment, it is often necessary to study the home surroundings of workers in relation to industrial life. The United States Public Health Service has decided that the portion of that organization detailed to the Working Conditions Service shall have authority over the industrial zone including both working and living conditions as affecting health. This arrangement, which could exist only under the agreement between the Public Health Service and the Working Conditions Service, makes possible effective industrial health study and improvement.

Industrial medicine is the application of medical practice to the industrial field. Industrial managers are coming generally to recognize the business value of providing medical service for their workers. When accidents occur, first aid must be available and injured workers returned to work as soon as possible. This policy is the result of experience under compensation legislation as well as the prompting of humanitarian instincts. Though the work of the first industrial physicians was mainly curative, possibilities of the preventive field are becoming increasingly evident. The larger work of the plant physician is to keep workers in good physical condition. An essential to this end is physical examination. If proper safeguards are provided, periodic physical examination of workers by the industrial physician or an industrial clinic produces information of physical weakness and tendencies, so that with proper advice sickness or breakdowns may be avoided.

Physical examinations have been misused by some employers and therefore have incurred distrust among some workers. They have

been used to disclose physical weaknesses and to debar men from work opportunities without performing the constructive functions of indicating the kind of work for which workers found to be physically handicapped are safely fitted. Properly used the physical examination is the basis for efforts to promote industrial health and to fit men to jobs.

In order to develop medical supervision and practice in industries and to secure most effective protection for workers as well as to insure highest productivity for the management, the Division of Industrial Hygiene and Medicine is developing and standardizing systems of medical and surgical service, and formulating standard systems of records and reports that will furnish the basis for intelligent policies.

Owners of small industrial plants sometimes feel unable to maintain a plant dispensary and physician. The Division of Industrial Hygiene and Medicine will endeavor to develop a plan to care for the workers in such plants. It advises and assists groups of employers to establish and control medical supervision and aid for all, and also assists in establishing industrial clinics for the workers of a community.

To further assist industrial medicine, the division maintains a register for physicians, nurses, and sanitarians trained industrially. This register assists employers to secure competent persons and to supervise and direct projects aimed to provide indispensable surgery and medicine in maintaining industrial health. As the supply of specialists with adequate industrial training is very limited, it is urging that colleges, universities, and technical schools provide instruction in industrial hygiene and medicine.

General interest in the field of industrial health is stimulated by encouraging discussions on industrial topics before scientific societies and conference groups, physicians, surgeons, and scientists. The division also prepares and publishes reports, statistics, and other informative literature dealing with industrial health.

DIVISION OF SAFETY ENGINEERING.

In addition to making work shops safe from the health viewpoint, they must be safe from the accident standpoint. The relation between industrial accidents and working conditions is much more obvious than that between occupational diseases and their causes. Consequently general information on industrial accidents is more comprehensive and such mishaps have more quickly been made a charge upon industry. Safety engineering, safety organization, and safety propaganda followed closely upon compensation legislation. Though much has already been done in the safety field, a still greater work lies ahead.

Many State departments of labor have divisions to further industrial safety and have formulated safety codes. Nongovernmental agencies have developed standards and safe practices. Because, in part, of the lack of a central clearing house for the exchange of information based upon experimentation and practical experiences there is no uniformity of theory or practice. Different agencies working without regard for each other have caused a duplication of efforts and conflicts in recommendation.

The Division of Safety Engineering of the Working Conditions Service provides in the Federal Government a national agency for coordinating industrial safety work and serving as the necessary clearing house for information and experience relating to safety in industry.

The industrial safety program deals with industrial hazards in three classes:

Those due to engineering defects.

Those due to the human element.

Those due to unavoidable trade risks.

To eliminate these hazards, there must be engineering research and investigation, studies of methods and policies tried out in practice and tested as shown by accident statistics, and information furnished by employers and employees as to accident hazards and their prevention.

The prevention of accidents involves something more than eliminating "ignorance and carelessness" of workers. Accident statistics show that accidents which result in loss of life and major injuries are in the main due to lack of mechanical safeguards, arrangement of buildings and yards, construction of buildings, defects in machinery, and other causes that lie within the engineering field. This phase of safety work is highly technical, but it is the heart of the problem.

The Division of Safety Engineering is developing a national clearing house for information on plant layout and construction with reference to safety in production, structural safety, mechanical safeguarding, forms of safety organization used in different industries, bulletin board methods and material.

The information collected in the central office is accessible to investigators and is being made generally available through bulletins and circulars on all phases of industrial safety. The spirit of cooperation manifested by private industries is facilitating and accelerating the development of this informational clearing house.

The importance of the engineering phase of industrial safety can be driven home only through a thorough educational campaign for all concerned in production. Of pivotal importance is the incorpora-

tion of industrial safety in engineering courses. The Working Conditions Service is cooperating with the National Safety Council to further the teaching of safety as an integral part of engineering courses, so that every engineer may develop a feeling of responsibility for the human life affected by his work. These engineers are in a position to influence the safety policies of business management and to instruct workers. To reach the general field, the Service will encourage safety-first lessons in public schools. This will help in bringing the "safety-first" habit into everyday relations.

The Division of Safety Engineering is projecting a bureau of speakers and lecturers in safety for the convenience and assistance of agencies inaugurating special campaigns and educational work. The encouragement and furtherance of safety exhibits, films, and lantern slides, illustrating safety problems are also in the program of the division.

Another phase of work of the national clearing house for industrial safety is promoting uniformity in State safety standards, in keeping injury statistics, safety forms and records, and in establishing safe practices. Uniformity will develop only under a central agency. The division is analyzing accident data as a basis for determining what standards should be generally established. Records must be standardized for use in comparative study which will put the experience of the trade at the service of the employer.

In addition to the work of the central office, the Service offers industries the services of consulting experts in safety. The Service makes studies of local plant conditions and needs, and advises on types of safety organization and devices that are desirable for each distinctive plant. Upon request, these experts visit the offices of managers where they can study the problem at first hand and talk over difficulties. These experts advise employers how to record and analyze their injury statistics and furnish record forms and practical devices when requested. They advise as to what safety methods and devices are best adapted to a particular trade and work environment. They suggest safeguards for special hazards and furnish designs. They also assist in installing safety organizations, routines, and practices.

Every plant has an individuality. No stereotyped organization will prove uniformly effective in all trades or with all kinds of workers. The safety organization must be adapted to the particular trade and workshop and must meet special problems arising out of machinery, tools, or materials used, foreign languages spoken by immigrant workers, and racial antipathies.

DIVISION OF LABOR ADMINISTRATION.

Industrial health and safety are recognized as fundamentally scientific problems. But these problems must be handled with full awareness that human beings are affected and that human beings have the same characteristics the world over—whether employers, salaried men, or wage earners. Each "wants to be somebody"—to have his hopes, opinions, and interests considered. If these workers only obey orders, if their labor and even their welfare are directed solely for the interests of the employer, the workers differ little from animals and the machines of production. Their initiative is crushed, they themselves feel shackled, injured, and resentful. Under such conditions the employer loses because no worker will or can do the quality or quantity of work he would do if all his faculties were working under the urge of personal interest.

The relation between management and employed ought to be those between human beings. For some years the tendency in the manufacturing world, due in a large measure to large-scale production under corporation control, has been to dehumanize industrial relations. Owners and employees have no immediate contact and business management is under the direction of salaried employees.

While money and experts have been freely used to develop the technical side of production, until recently little thought was given to the human element in production. Nevertheless the "good will" of workers is an asset of the greatest value to the management.

Such good will must be founded on mutual regard and consideration. Employees must be shown that they gain a definite benefit from joint relationship with the management. Where good will exists there is developed a stable working force, which, in turn, gives the management skilled service trained in the plant methods. The expense of hiring and training new employees is reduced. Costs of spoiled materials, accidents, delayed production, and general friction attending adjustments are reduced. Shop morale develops. But it should be remembered always that "good will" is the outcome of sincerity of purpose and justice.

Those who have been studying the problems arising out of governing a work force, have developed practices and methods of labor administration that bring most effective results. The technique in this field is developing definite form and tendencies and ought to be utilized by all responsible for determining employment policies.

As there is a good way to deal with every problem, so some methods of selecting and hiring employees lead to better results than others. To determine the value of methods, the management must have adequate records showing results for both employers and employees. A central agency must collect data of existing practices and their work-

ings and by studying these data develop the best policies and methods. This is the function of the Division of Labor Administration, which seeks to open an unobstructed channel through which the best employment policies and practices of the country may pass into universal usage.

As a nucleus for a central reference library, the division is collecting and analyzing data upon the following general elements of industrial activity:

Source of Labor Supply.—Where and how to secure the labor needed for various kinds of work.

Central Employment Department.—How to organize a centralized department to supervise the employment of the labor forces of the plant. (Model blank forms for administration and record keeping have been devised and are furnished to managements upon request. Assistance is being given in establishing employment departments and installing improved employment methods.)

Hiring and Selecting Employees.—How to choose carefully workers that are fitted for the jobs available and how to avoid misfitting men.

Job Analysis.—How to analyze each job in the plant so that the exact mental and physical qualities needed by the workman in order to succeed in each job may be known.

Assigning Men to Duties.—Methods of "breaking in" new help, introducing them to new jobs and new fellow-employees so as to make it easier for them to adjust themselves to new surroundings, and thus prevent them from becoming discouraged and quitting.

Promotion and Transfer.—How to supervise workers on their jobs, to see that they are promoted whenever opportunity offers, and to arrange transfers to more suitable occupations when not fitted for work first assigned.

Labor Turnover.—How to reduce the rotation of the workers in the plant. Methods of discovering the real reasons that keep workers constantly quitting and measures for eliminating causes of dissatisfaction. Methods also of keeping records of labor turnover so that increases may be promptly noticed and dealt with accordingly.

Absenteeism and Tardiness.—How to keep records of absences and tardiness among workers, watch increases in number and methods of reducing absences and tardiness to a minimum.

Regularizing Employment.—How to transfer men and arrange work so that men will not have to be laid off and suffer unemployment and the labor force disorganized.

Restaurants and Lunch Rooms.—Information regarding best methods of providing restaurant and lunching facilities for employees.

Complaints and Grievances.—Best methods of receiving and handling complaints and grievances of employees in order to avoid suspicion and conflict between men and management.

Rules and Regulations.—How to prepare a handbook of regulations containing the labor management policies of the plant and getting the employees to cooperate in framing and enforcing rules.

Plant Paper.—Advice and assistance in establishing and conducting a plant paper for educating employees and securing better understanding.

Housing.—Methods of providing housing facilities for employees and conducting rooming-house registries.

Recreation.—How to provide and organize recreation among employees.

Insurance and Pensions.—Methods of establishing and conducting insurance and pension funds for employees.

General Service.—Methods of providing legal advice for employees to protect them against fraud and extortion, establishing savings systems, granting loans, and maintaining other similar services for employees.

This division has organized its work under three branches—information service, consulting service, and standardization service.

Under information service, in addition to the employment reference library mentioned above, the division has ready for use methods of tabulating employment and turnover statistics, organized systems of employment forms and systems, and a register of qualified employment managers and personnel directors.

In order to make this information available for general use the division issues from time to time labor administration circulars and bulletins, bibliographies, and laboratory material for employment management courses. Upon request, special reports are compiled, specific information is supplied, accredited experts are sent for special conferences, and public speakers are supplied.

Another kind of assistance furnished employers is the consulting service. Employment experts are sent to discuss with employers problems of labor turnover and methods of keeping and using records of labor turnover and holdover, effective employment organization, and special problems of administering the labor force. If desired, these employment experts design for the management of plants visited employment forms, blanks, and record systems, and show them how to tabulate statistics.

They advise the management as to the layout and equipment of employment offices and upon request assist in installing an employment organization and training those who are to direct it.

Books of rules and regulations will be drawn up for special plants or trades.

The natural result of the Division of Labor Administration is standardization of those methods and policies which have demonstrated greatest effectiveness. Theory and technique will be developed with definiteness, employment policies will be improved, qualifications necessary for employment managers will be standardized, and professional ethics will be raised.

The work of the division will make for decreased cost of production, greater efficiency of workers in production and better industrial relations.

RESEARCH BRANCH.

The work done by these three divisions covers three distinct fields which must necessarily be coordinated in order that development shall be with regard to relative importance and to industrial applica-

tion. Development of any one field separately would tend to subordinate the other two. In order to make this theoretical coordination effective the Research Branch of the Service will function for all three divisions to the extent that it uncovers in each particular plant problems that must receive separate consideration. No satisfactory work can be done in any field without an accurate knowledge of all the factors involved. The Working Conditions Service aims to tender not only a special service to industry, but it is founded upon a scientific basis. Its personnel is highly trained and selected because of familiarity with the basic problems of industry in so far as these pertain to health, safety and the psychology of human activity.

Every effort is made to increase the technical efficiency of this personnel. There is close supervision maintained of the researches made and a consulting service organized to make available the assistance of the leading specialists in the respective fields of ventilation, fatigue, sanitation, health, and like factors that enter into the problems of safe and hygienic working conditions.

Primarily organized to conduct researches into hazards, it is able to direct special surveys for particular plants and to serve in an advisory capacity all industrial establishments confronted with similar problems.

To this end district offices have been opened in New York, Philadelphia, Pittsburgh, Cleveland, Chicago, and St. Louis. Offices are contemplated in Boston and Birmingham when the funds of the Service justify the expenditures. These offices are at the command of industries within their territorial boundaries for information or technical research service as the needs of the industries may require.

Through this Research Branch, service has been rendered to a great variety of industrial plants, including work on such problems as lead poisoning in various processes connected with storage battery manufactories, paint works, pottery production; as dust removal from powder production and powder loading plants, grinding rooms, crushing processes in a great variety of industries; ventilation devices; chemical hazards; heat hazards; improved lighting; water supplies; waste destruction; insanitary housing, and other factors within and without the plants that have puzzled plant managers and at whose request the Service has felt impelled to furnish needed research and constructive advice.

The Research Branch of the Service makes intensive studies into special hazards, occupational and mechanical, and uncovers problems to be studied and determined by specialists. Due to the scientific nature of the fields, the research work is concerned chiefly with working conditions as they affect health and safety of workers.

The research force is in the field, detailed to six district offices and is made up of high-grade medical men, sanitary, chemical, mechanical, and production engineers, specialists in their line in problems affecting industries.

District offices were opened in order to furnish expeditiously a consulting service to industries within the territorial boundaries of the districts. Direction of the research force and the work of district offices comes from the central office.

The Working Conditions Service desires to help any industry with any problems in industrial health, medical and surgical organization and care, safety organization and education, and the multitudinous phases of labor administration. As a governmental agency it is in a position to render nonpartisan, impartial findings and advice. Since the work of the Service is not upon a commercial basis, the element of financial interest will not interfere with its scientific work. The one purpose which the Working Conditions Service seeks to further is the improvement of working conditions.

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